

REMARKS/ARGUMENTS

I. Claim Rejections – 35 USC § 103

Claims 1-35 and 41-42 remain present in the application; claims 1 and 23 are independent claims. There are no amendments to the specification or the claims. Applicants respectfully request reconsideration and allowance of all the claims for the reasons discussed below.

Preliminary Matters

Applicant notes the examiner has not acknowledged priority under 35 U.S.C. 119 in the office action and office action summary dated December 21st 2010. Applicant respectfully requests the examiner to fill out section 12 of the office action summary.

Rejection of Claims 1, 2, 6, 7, 9-11, 23-26, and 28 under 35 U.S.C. 103(a)

Claims 1, 2, 6, 7, 9-11, 23-26, and 28 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Gür et al (US 5,376,469) in view of Barnett (US 2002/0098401) and Stark et al (US 2004/0126298).

The examiner contended, on page 3 of the office action, that:

“Gür et al teaches a high temperature fuel cell 10 that uses an oxygen ion conducting solid electrolyte 30 (solid-oxide electrolyte) in conjunction with separate temperature zones 14, 16 to optimize the direct electrochemical conversion of carbon fuels 12 (solid-state organic fuel) to electrical energy (direct-electrochemical-oxidation fuel cell) (see col. 2, lines 18-22).”

Regarding claim 1 and 23, applicant respectfully submit Gür et al does not disclose or teach a direct-electrochemical-oxidation for generating electrical energy from a solid-state organic fuel. The examiner contends the fuel cell of Gür et al may use untreated coal as carbon fuel (col. 6, line 35-46). Applicant respectfully directs the examiner to col. 1, lines 39-46; Gür et al teaches coal is converted into gaseous fuel prior to combustion, meaning coal and wet oxygen

is converted to CO and H₂. The CO reacts with O₂ to produce CO₂. Furthermore, Gür et al teaches pure carbon fuels undergo combustion by two different reactions, as depicted by eq. III and eq. IV. Therefore, Gür et al's fuel cell does not use solid-state fuel cell; the fuel is in a gaseous state.

Applicant respectfully directs the examiner to paragraph 26 of the instant disclosure.

"The solid-state organic fuel can be any carbon-series fuel or any solid material having at least one carbon atom, including fossil fuels such as coal, graphite, charcoal, biomass...Although the organic fuel is in the solid state, the fuel can be ground, chopped, or otherwise broken down into small particulate solids to form a fine powder organic fuel."

The instant invention consumes solid-state fuel directly and the fuel is in direct contact with the anode surface of the fuel cell; the fuel is not converted to a different physical state (solid to gas). Furthermore, the solid-state oxygen anions are transported through the solid-oxide electrolyte to the anode and combine with the solid-state organic fuel on the surface of the electrochemical oxidation catalyst (paragraph 0037) as opposed to the gaseous carbon fuel (CO) used in Gür et al's fuel cell (col. 1, line 53).

The structure and the fuel of the instant invention and the prior art are significantly different. Therefore, the rejections on claims 1 and 23 should be withdrawn and these claims allowed.

In regards to claims 17, 19, 21, 22, and 35, the examiner contends the claims limitations are inherent because the fuel cell of Gür et al modified by Barnett and Stark et al is structurally and chemically identical to that of the claimed invention. For the aforementioned reasons, Gür et al does not teach the limitations of claim 1 and 23. The examiner is also reminded that "in relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). See MPEP 2112. Therefore, the rejections of claims 17, 19, 21, 22, and 35 should be withdrawn and these claims allowed.

Rejection of Claims 2-22, 24-35, and 41-42 under 35 U.S.C. 103(a)

Dependent claims 2-3, 5-7, 9-11, 13-22, 24-26, 28, 29, 31-35, and 41-42 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Gür et al (US 5,376,469) in view of Barnett (US 2002/0098401) and Stark et al (US 2004/0126298).

Dependent claims 4 and 30 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Gür et al (US 5,376,469) in view of Barnett (US 2002/0098401) and Stark et al (US 2004/0126298) in view of Coors (US 7,332,237) and Paisley (US 6,680,137).

Dependent claims 8 and 27 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Gür et al (US 5,376,469) in view of Barnett (US 2002/0098401) and Stark et al (US 2004/0126298) in view of Visco et al (US 2006/0057295).

Dependent claims 12 and 36 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Gür et al (US 5,376,469) in view of Barnett (US 2002/0098401) and Stark et al (US 2004/0126298) in view of Giaquinta et al (US 2007/0010396).

Applicant submits neither Barnett, Stark et al, Coors, Paisley, nor Giaquinta et al remedy the deficiency of Gür et al as discussed in respect to claims 1 and 23 and there is no apparent reason one of ordinary skill in the art at the time of invention would combine the cited references to arrive at the embodiments of claims 1 and 23. Therefore, claims 1 and 23 is not rendered unpatentable in view of the cited combination of references.

Since claims 2-22 depend directly or indirectly from claim 1 and claims 24-35, and 41-42 depend directly or indirectly from claims 23, they incorporate all the limitations of claim 1 or 23 which further patentably distinguish from the cite prior art when considered as a whole. Therefore, applicant respectfully requests all the claim rejections to be withdrawn and these claims allowed.

CONCLUSION

In light of the above remarks, Applicants believe that the rejections have been overcome. Applicants respectfully request that the Examiner withdraw the rejections and issue a notice of allowance.

Respectfully submitted,



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